

## **REMARKS**

Claims 1-20 are rejected. Claims 5 and 19 have been amended. Claim 1, 9 and 15 are independent claims. Claims 1-20 are now pending. Applicants respectfully request reconsideration based upon the amendments to the claims and the remarks herein.

The specification stands objected to for informalities. In response applicants have corrected the informality as suggested by the Office Action. Applicants respectfully request withdrawal of this ground of objection.

Dependent claims 5, 19 and 20 stand objected to for informalities. In response, applicants have corrected dependent claims 5 and 19 as suggested by the Office Action. Regarding dependent claim 20, applicants have not amended that dependent claim as recommended by the Office Action. Applicants note that that dependent claim is directly supported by the disclosure and that the Office Action provides no evidential support for its conclusion that it is well known that a NRZ generator works ‘normally’ without using a precoder’ (See. Specification page 8, line 7 and page 11, line 8). In fact, applicants respectfully note that the Office Action on page 4 contradicts this conclusion by arguing that Yano teaches a “. . . NRZ optical signal generating section . . . . [receives] NRZ electrical signal from a pulse pattern generator (NRZ DATA in Figure 13). . .). Regardless, applicants believe that dependent claim 20 as currently presented is a proper dependent claim. Applicants respectfully request withdrawal of these grounds of objection.

Claims 1-4, 6, 15-18 stand rejected under 35 USC § 103(a) as being unpatentable over Miyamoto et al (US 6,865, 348) in view of Yano (US 2003/0147656). In response,

applicants respectfully traverse this ground of rejection and request reconsideration.

Claim 1, as currently presented recites a duobinary optical transmission apparatus comprising, inter alia, a *Non-Return to Zero (NRZ) optical signal generating section configured to receive an NRZ electrical signal* . . . and a *duobinary optical signal generating section configured to receive said NRZ electrical signal*. Similarly claim 15 as currently presented recites a similar method.

In contrast, neither Miyamoto nor Yano suggest or teach a NRZ optical signal generating section and a duobinary optical signal generating section that receives NRZ electrical signal as recited in the base claims (See also FIG. 4). Miyamoto, as illustrated in FIGs. 23A and 23B discloses that only the ‘duobinary encoded signal generating section 170’ receives a binary signal. As seen in Yano, FIG 13 only the ‘NRZ Data Modulation Section’ receives NRZ data. The present invention clearly shows this feature in FIG. 4 where NRZ electrical signal is received by both the NRZ optical signal generating section 200 and the duobinary optical signal generating section 100. Therefore, neither Miyamoto nor Yano suggest or teach a NRZ optical signal generating section and a duobinary optical signal generating section that both receives NRZ electrical signal as recited in the base claims.

Applicants respectfully request reconsideration and withdrawal of this ground of rejection.

Claims 9-14 stand rejected under 35 USC § 103(a) as being unpatentable over Kaiser et al (Kaiser et al., “Reduced Complexity Optical Duobinary 10 Gb/s Transmitter Setup Resulting in an Increased Transmission Distance,” IEEE Photonics Technology Letters, Vol. 13, No. 8, August 2001, page 884-886) in view of Yano (US 2003/0147656)

and Kim et al. (H. Kim et al., "Demonstration of Optical Duobinary Transmission System Using Phase Modulator and Optical Filter," IEEE Photonics Technology Letters, Vol. 14, No. 7, July 2002).

Claim 9 as currently presented recites a duobinary optical transmission apparatus comprising, *inter alia*, a T-flip-flop separating a group of '1' in odd positions or even positions in the sequence from the NRZ electrical signal.

In contrast, Kaiser discloses a precoder constructed of an inverter, an AND gate and a T-flip-flop which functionally operates according to the timing diagram in FIG. 3. Applicants respectfully submit that Kaiser's precoder does not operate to separating a group of '1' in odd positions or even positions in the sequence from the NRZ electrical signal. First, Kaiser's precoder does not separating a group of '1' in odd positions or even positions in the sequence from the NRZ electrical as recited in the base claims. Kaiser's precoder, as far as applicants understand it functions produces a bit sequence based upon a clock, and the logic circuit which yields a predetermined bit sequence which masks the input bit sequence but does not show separating a group of '1' in odd positions or even positions in the sequence from the NRZ electrical signal.

Secondly, because Kaiser's precoder contains additional logic components which yield a different output than the present invention (which is just a T-flip-flop) you can not simply combine the precoder with another device such as Yano or Kim's device. In other words, Kaiser's precoder combined with either reference would not result in the present invention as recited in the base claim but would teach away from the present invention.

Regarding the Yano and Kim references, applicant's respectfully note that they have thoroughly reviewed those references and do not find any focused discussion of a

NRZ precoder nor any support for the Office Action's conclusions to combine those references with just the T-flip-flop found in Kaiser's precoder. There simply is no motivation to combine those references. Applicants respectfully submit that the Office Action is using improper hindsight using the present invention as a blueprint and piecing together bits and pieces of the prior art to arrive at the present invention.

Applicants respectfully request reconsideration and withdrawal of this ground of rejection.

The other claims in this application are each dependent from the independent claim discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration of the patentability of each on its own merits is respectfully requested.

For all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited references. A Notice of Allowance is respectfully requested.

Respectfully submitted,



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